

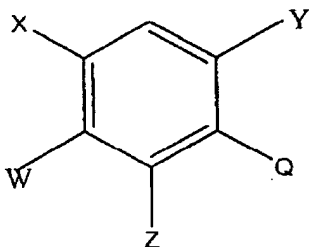
SUPPLEMENTAL AMENDMENT
U.S. Appl. No. 10/797,936

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A compound represented by the formula I or its salts



I

wherein X is hydrogen, halogen, nitro, amino, NHR, N(R)₂, amide, [thioatnide]thioamide, cyano, alkylcarbonyl, alkoxycarbonyl, alkylsulfonamide, unsubstituted or substituted alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxycarbonylalkoxy, benzyloxy, amyloxy, or heteroaryloxy;

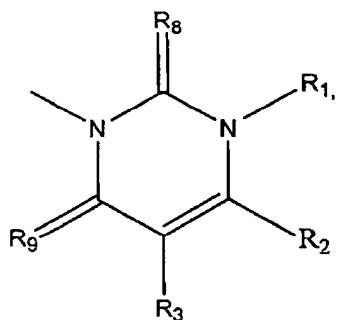
Y is hydrogen, halogen, or nitro;

W is hydrogen, OR, SR, NHR, N(R)₂, CH₂R, CH(R)₂, C(R)₃, halogen, nitro, or cyano, where multiple R groups represent any possible combination of substituents described by R; R is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, alkoxy, cycloalkyloxy, aryloxy, heteroaryloxy, alkylsulfonyl, benzyl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, aryloxy carbonyl, or heteroaryloxy carbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, carboxyl, alkyl,

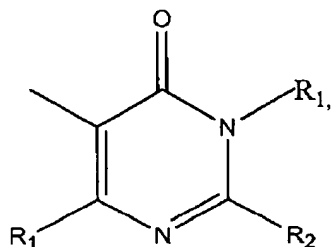
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haloalkyl, alkylsilyl, alkylcarbonyl, haloalkylcarbonyl, alkoxy, [alkoxybarbonyl]alkoxycarbonyl,
haloalkoxy, haloalkoxycarbonyl, alkylsulfonyl, haloalkylsulfonyl, aryl, heteroaryl, or cycloalkyl;

Q is a heterocycle:

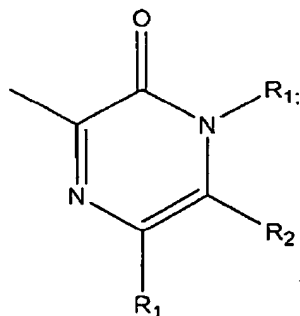


Q1



Q12

or



Q13

wherein R₁ is hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, amino, alkoxyalkyl, acetyl, alkoxycarbonylamino, alkylcarbonylamino, or alkoxycarbonyl;

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R₂ is alkyl or haloalkyl;

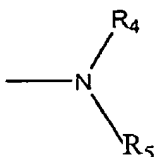
R₁ and R₂ could combine to form a five- or six-membered heterocyclic ring;

R₃ is hydrogen, halogen, nitro, amino, alkylamino, haloalkylamino, cyano, or amide;

R₈ and R₉ are independently oxygen, or sulfur;

Z is amino, hydroxyl, thiol, formyl, carboxyl, cyano, alkylcarbonyl, arylcarbonyl, azido,

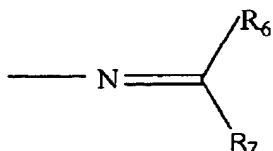
or one of the following:



wherein R₄ is alkyl, alkenyl, alkynyl, amino, cycloalkyl, heterocycloalkyl, alkylsulfonyl, arylsulfonyl, benzyl, aryl, heteroaryl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkylthiocarbonyl, cycloalkyloxycarbonyl, aryloxycarbonyl, [arylthio-carbonyl,] aryl-thiocarbonyl, heteroaryloxycarbonyl, aminocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, alkoxycarbonylcarbonyl or arylcarbonylcarbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl or methylenedioxy, wherein the alkyl moiety or aryl moiety may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy,

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alkoxycarbonyl, aryl, or heterocycloalkyl; and R_5 is hydrogen or any one of the groups represented by R_4 ; or R_4 and R_5 could combine to form a 4-8 membered heterocyclic ring;



wherein R_6 represents alkyl, haloalkyl, dialkylamino, unsubstituted or substituted aryl and heteroaryl; and R_7 represents hydrogen, halogen or any of the groups represented by R_6 ;

$-OR_4$,

$-SR_4$,

$-CH_2R_{10}$,

$-CH(R_{10})_2$,

$-C(R_{10})_3$, or

$-CH=CHR_{10}$

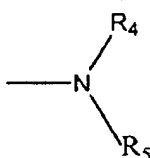
wherein R_{10} is carboxyl, alkyl, alkenyl, alkynyl, amino, cycloalkyl, heterocycloalkyl, alkylsulfonyl, arylsulfonyl, benzyl, aryl, heteroaryl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkythiocarbonyl, cycloalkyloxycarbonyl, aryloxycarbonyl, arylthio-carbonyl, aryl-thiocarbonyl, heteroaryloxycarbonyl, aminocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, alkoxycarbonylcarbonyl or arylcarbonylcarbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl,

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alkenyl, alkynyl, cycloalkyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl or methylenedioxy, wherein the alkyl moiety or aryl moiety may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxycarbonyl, cycloalkyl, aryl, or heterocycloalkyl;

provided that [(1)] Z is not alkyl, alkoxy, haloalkyl, haloalkoxy, alkylthio, haloalkylthio, alkenyl, haloalkenyl, amino, monoalkylamino, dialkylamino, alkoxyalkoxy, hydroxyl, alkynyloxy or cyano, when Q is Q1 and R₂ is haloalkyl.

2. (original): The compound according to claim 1 wherein Z is represented by the following:



wherein R₄ and R₅ are the same as defined in claim 1;

or —CH₂R₁₀,

wherein R₁₀ is the same as defined in claim 1.

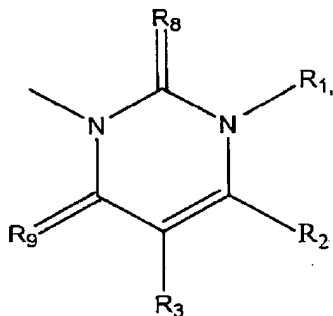
3. (original): The compound according to claims 1 or 2 wherein X is halogen or cyano;
Y is halogen;

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W is OR;

R is alkyl, alkenyl, or alkynyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, or carboxyl.

4. (original): The compound according to claim 1 wherein Q is



Q1

wherein R₁ is alkyl, amino, or haloalkyl;

R₂ is haloalkyl;

R₃ is hydrogen;

R₈ and R₉ are independently oxygen, or sulfur.

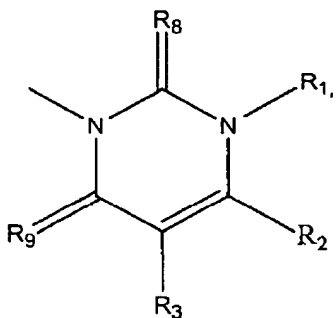
5. (currently amended): The compound according to claim 1 wherein X is a halogen;

Y is fluorine;

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W is OR; R is alkyl, alkenyl, or alkynyl, where any of these groups may be unsubstituted or substituted with halogen or cyano;

Q is



Q1

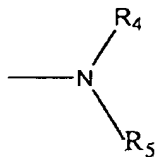
wherein R₁ is alkyl, amino, or haloalkyl;

R₂ is haloalkyl;

R₃ is hydrogen;

R₈ and R₉ are independently oxygen, or sulfur;

Z is represented by the following:



wherein R₄ is alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxy carbonyl, alkylthiocarbonyl, cycloalkyloxy carbonyl, aryloxy carbonyl, [arylthio-carbonyl,] aryl-thiocarbonyl, heteroaryloxy carbonyl, aminocarbonyl,

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alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, alkoxycarbonylcarbonyl, or arylcarbonylcarbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl, or methylenedioxy, wherein the alkyl moiety or aryl moiety may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxycarbonyl, aryl, or ~~heterocycloalkyl~~heterocycloalkyl; and R₃ is hydrogen;

or -CH₂R₁₀,

wherein R₁₀ is carboxyl, alkyl, alkenyl, or alkynyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl, alkenyl, alkynyl, cycloalkyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl, or methylenedioxy, wherein [the]the alkyl moiety or aryl moiety may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxycarbonyl, cycloalkyl, aryl, or heterocycloalkyl.

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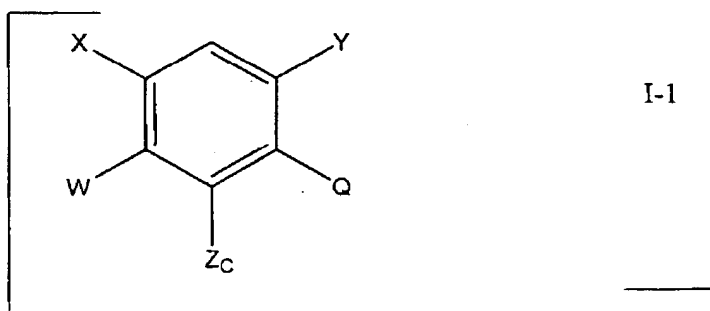
6. (previously presented): A compound selected from the group consisting of 3-(2-amino-4-chloro-6-fluoro-3-methoxyphenyl)-1-methyl-6-trifluoromethyl-2,4(1H,3H)pyrimidinedione; 3-(2-amino-4-chloro-6-fluoro-3-methoxyphenyl)-1-amino-6-trifluoromethyl-2,4(1H,3H)-pyrimidinedione;

3-(2-amino-4-chloro-6-fluoro-3-methylphenyl)-1-methyl-6-trifluoromethyl-2,4(1H,3H)-pyrimidinedione; and 3-(2-amino-4-chloro-3-difluoromethoxy-6-fluorophenyl)-1-methyl-6-trifluoromethyl-2,4(1H,3H)-pyrimidinedione.

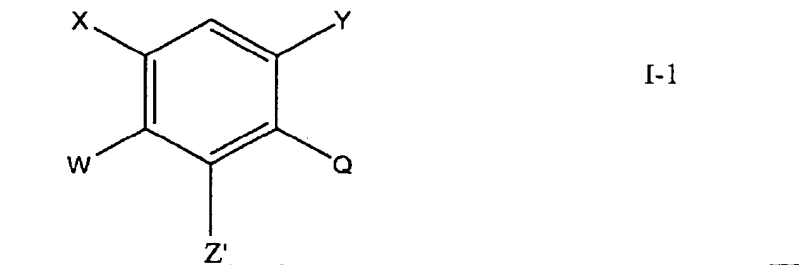
7. (previously presented): A herbicidal composition, characterized in that it contains at least one compound according to claim 1 or 6 and an agricultural adjuvant.

8. (currently amended): A process for preparing a compound represented by the formula

I-1 or its salts:



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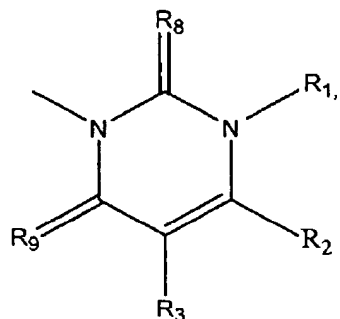
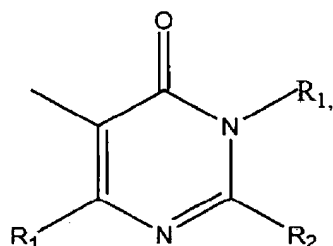
I-1

wherein X is hydrogen, halogen, nitro, amino, NHR, N(R)₂, [amide]amide, thioamide, cyano, alkylcarbonyl, alkoxy carbonyl, alkylsulfonamide, unsubstituted or substituted alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxy carbonylalkoxy, [benzloxy]benzyloxy, aryloxy, or heteroaryloxy;

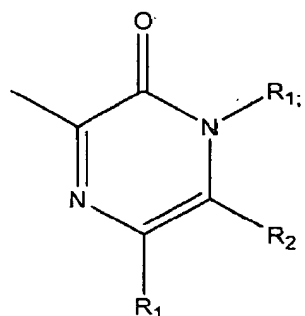
Y is hydrogen, halogen, or nitro;

W is hydrogen, OR, SR, NHR, N(R)₂, CH₂R, CH(R)₂, C(R)₃, halogen, nitro, or cyano, where multiple R groups represent any possible combination of substituents described by R; R is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, alkoxy, cycloalkyloxy, aryloxy, heteroaryloxy, alkylsulfonyl, benzyl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxy carbonyl, aryloxy carbonyl, or heteroaryloxy carbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, carboxyl, alkyl, haloalkyl, alkylsilyl, alkylcarbonyl, haloalkylcarbonyl, alkoxy, alkoxy carbonyl, haloalkoxy, haloalkoxy carbonyl, alkylsulfonyl, haloalkylsulfonyl, aryl, heteroaryl, or cycloalkyl;

Q is a heterocycle:

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or

Q13

wherein R₁ is hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, amino, alkoxyalkyl, acetyl, alkoxycarbonylamino, alkylcarbonylamino, or alkoxycarbonyl;

R₂ is alkyl or haloalkyl;

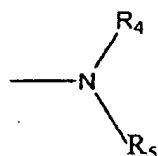
R₁ and R₂ could combine to form a five- or six-membered heterocyclic ring;

R₃ is hydrogen, halogen, nitro, amino, alkylamino, haloalkylamino, cyano, or amide;

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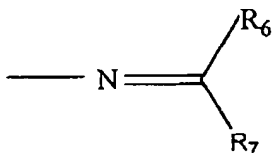
R₈ and R₉ are independently oxygen, or sulfur;

Z' is one of the following:



wherein R₄ is alkyl, alkenyl, alkynyl, amino, cycloalkyl, heterocycloalkyl, alkylsulfonyl, arylsulfonyl, benzyl, aryl, heteroaryl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkylthiocarbonyl, cycloalkyloxycarbonyl, aryloxycarbonyl, [arylthio-carbonyl,] aryl-thiocarbonyl, heteroaryloxycarbonyl, aminocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, alkoxycarbonylcarbonyl, or arylcarbonylcarbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl, alkenyl, alkynyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl, or methylenedioxy, wherein the alkyl moiety or aryl moiety may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxycarbonyl, aryl, or heterocycloalkyl; and R₅ is hydrogen or any one of the groups represented by R₄; or R₄ and R₅ could combine to form a 4-8 membered heterocyclic ring;

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wherein R_6 represents alkyl, haloalkyl, dialkylamino, unsubstituted or substituted aryl and heteroaryl; and R_7 represents hydrogen, halogen or any of the groups represented by R_6 ;

$-\text{CH}_2\text{R}_{10}$,

$-\text{CH}(\text{R}_{10})_2$,

$-\text{C}(\text{R}_{10})_3$, or

$-\text{CH}=\text{CHR}_{10}$

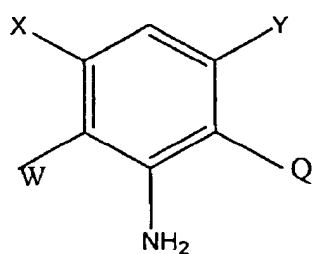
wherein R_{10} is carboxyl, alkyl, alkenyl, alkynyl, amino, cycloalkyl, heterocycloalkyl, [25] alkylsulfonyl, arylsulfonyl, benzyl, aryl, heteroaryl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, alkylthiocarbonyl, cycloalkyloxycarbonyl, aryloxycarbonyl, [arylthio-carbonyl] arylthiocarbonyl, heteroaryloxycarbonyl, aminocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, alkoxycarbonylcarbonyl or arylcarbonylcarbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, dialkylamino, hydroxyl, carboxyl, alkyl, alkenyl, alkynyl, cycloalkyl, alkylcarbonyl, alkylcarbonyloxy, alkoxy, alkoxycarbonyl, alkylthio, alkylthiocarbonyl, alkoxythiocarbonyl, alkylaminocarbonyl, arylaminocarbonyl, alkylsulfonyl, alkenyloxycarbonyl, alkynyloxycarbonyl, aryl, arylcarbonyl, aryloxy, aryloxycarbonyl, arylthio, heteroaryl, heteroaryloxycarbonyl or methylenedioxy, wherein the alkyl moiety or aryl moiety

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may be substituted with halogen, cyano, nitro, alkyl, alkoxy, haloalkyl, haloalkoxy, alkoxy carbonyl, cycloalkyl, aryl, or heterocycloalkyl;

provided that [(1)] Z' is not alkyl, haloalkyl, alkenyl, haloalkenyl, monoalkylamino, or dialkylamino, when Q is Q1 and R₂ is haloalkyl,

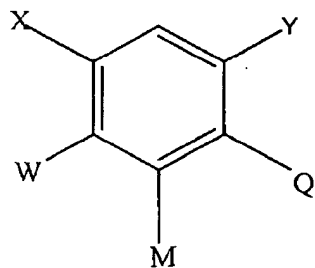
which comprises of reacting a compound represented by the formula II:



II

with a compound selected from the group consisting of an alkyl halide, alkyl acid halide, aryl acid halide, alkyl acid anhydride, aryl acid anhydride, alkylhaloformate, alkyl isocyanate, aryl isocyanate, alkyl dihalide, aliphatic aldehyde, aliphatic ketone, aromatic aldehyde, and aromatic ketone.

9. (currently amended): A compound represented by the formula III:



III

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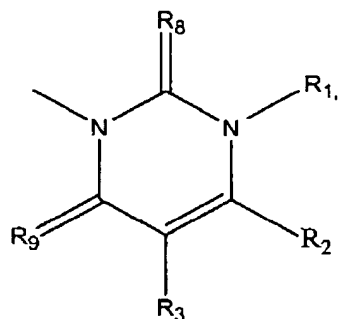
wherein X is hydrogen, halogen, nitro, amino, NHR, N(R)₂, amide, thioamide, cyano, alkylcarbonyl, alkoxycarbonyl, alkylsulfonamide, unsubstituted or substituted alkyl, haloalkyl, alkoxy, haloalkoxy, alkoxycarbonylalkoxy, benzyloxy, aryloxy, or heteroaryloxy;

Y is hydrogen, halogen, or nitro;

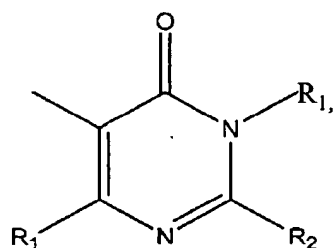
W is hydrogen, OR, SR, NHR, N(R)₂, CH₂R, CH(R)₂, C(R)₃, halogen, nitro, or cyano, where multiple R groups represent any possible combination of substituents described by R; R is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, alkoxy, cycloalkyloxy, aryloxy, heteroaryloxy, alkylsulfonyl, benzyl, alkylcarbonyl, alkenylcarbonyl, alkynylcarbonyl, arylcarbonyl, heteroarylcarbonyl, alkoxycarbonyl, aryloxy carbonyl, or heteroaryloxy carbonyl, where any of these groups may be unsubstituted or substituted with any of the functional groups represented by one or more of the following: halogen, cyano, nitro, amino, carboxyl, alkyl, haloalkyl, alkylsilyl, alkylcarbonyl, haloalkylcarbonyl, alkoxy, alkoxycarbonyl, haloalkoxy, haloalkoxycarbonyl, alkylsulfonyl, haloalkylsulfonyl, aryl, heteroaryl, or cycloalkyl;

Q is a heterocycle:

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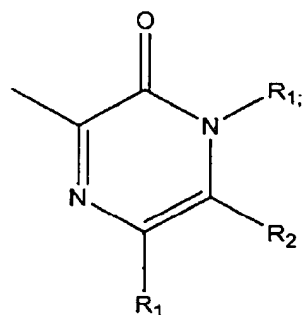


Q1



Q12

or



Q13

wherein R₁ is hydrogen, alkyl, haloalkyl, alkenyl, alkynyl, amino, alkoxyalkyl, acetyl, alkoxy-carbonylamino, alkyl-carbonylamino, or alkoxy-carbonyl;

R₂ is alkyl or haloalkyl;

R₁ and R₂ could combine to form a five- or six-membered heterocyclic ring;

R₃ is hydrogen, halogen, nitro, amino, alkylamino, haloalkylamino, cyano, or amide;

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R₈ and R₉ are independently oxygen or sulfur;

M is nitro,

provided that 1-methyl-6-trifluoromethyl-3-(4-bromo-2-fluoro-5-hydroxy-6-nitrophenyl)-2,4(1H,3H)-pyrimidinedione and 1-methyl-6-trifluoromethyl-3-(4-chloro-2-fluoro-5-hydroxy-6-nitrophenyl)-2,4(1H,3H)-pyrimidinedione are excluded.

10. (previously presented): A method for controlling undesired vegetation which comprises applying to a locus to be protected a herbicidally effective amount of a compound of claim 1 or 6.

11. (original): The method of claim 10 wherein the locus to be protected is a cereal crop field.

12. (previously presented): The method of claim 11 wherein the compound of claim 1 or 6 is applied to soil as a preemergent herbicide.

13. (previously presented): The method of claim 11 wherein the compound of claim 1 or 6 is applied to plant foliage.

14. (previously presented): A method to defoliate potato and cotton using a compound of claim 1 or 6.